

CLAIMS:

1. A method of generating a watermark being unique to a receiver of a multi-cast transmission of multimedia data in the form of data packets, said method comprising the following steps:
 - transmitting from a source (1) at least two different copies ($V_0[i]$, $V_1[i]$) of each data packet (P[1], P[2],...,P[k]) having different watermarks, at least a first watermark (w_0) and a second watermark (w_1), respectively,
 - encrypting said copies ($V_0[i]$, $V_1[i]$) differently, preferably by means of different encryption keys SK[1], SK[2],...,SK[2k],
 - providing each receiver (R_1 , R_2 ,..., R_n) access to only one of said two encrypted copies, thereby providing each receiver (R_1 , R_2 ,..., R_n) with an unique resulting data stream (S) comprising data packets having first and second watermarks (w_0 , w_1), wherein the order in which the first and second watermarks (w_0 , w_1) are present in the resulting stream (S) provides the unique watermark,
 - providing the data stream (S) with a multi-bit capacity in a single layer for storing additional information.
2. A method according to claim 1, wherein the additional information is global information.
3. A method according to claim 2, wherein the additional information is at least one of copyright information, producer information, and owner information.
4. A method according to claim 1, wherein source (1) and the receivers (R_1 , R_2 ,..., R_n) are linked together by means of a distribution network (2) such as the Internet.
5. A method according to claim 1, wherein the copy ($V_0[i]$, $V_1[i]$) to which a receiver (1) has access is determined by a sequence of random encryption keys (SK[1], SK[2],...,SK[2k]) which are sent prior to transmitting.

6. A method according to claim 5, wherein the keys (SK[1], SK[2],...,SK[2k]) are generated prior to transmission by the source (1) and stored in files.
7. A method according to claim 1, wherein the watermarks that are generated change with time as long as they are not identical, and the source keeps track of them.
8. A method according to claim 1, wherein the watermarks that are generated are more than two.
9. A method according to claim 1, wherein also an identity string derived by the source from both keys given to the receiver and the resulting stream is generated.
10. A method according to claim 1, wherein bandwidth usage is reduced by optimizations, for instance by not watermarking all packets, for instance by watermarking last ten minutes of a movie.
11. A source (1) for transmitting multimedia data to receivers (R_1, R_2, \dots, R_n) of a multicast transmission, said source comprising operational means (10) further comprising or connectable to transmitting and encryption means (20) which together:
- read data packet i $P[i]$,
 - create at least two watermarked copies $V_0[i], V_1[i]$ of data packet i ,
 - get two encryption keys $SK[2i-1]$ and $SK[2i]$,
 - encrypt the watermarked copies $V_0[i], V_1[i]$ of data packet i $C_0[i]=E(V_0[i], SK[2i-1])$ and $C_1[i]=E(V_1[i], SK[2i])$,
 - add additional information, typically global information such as copyright using the data packets,
 - transmit $C_0[i]$ and $C_1[i]$ together with i , where $i=1, 2, \dots, k$, via a network to the receivers (R_1, R_2, \dots, R_n).
12. A source according to claim 11, wherein the operational means (10), transmitting means and encryption means (20) are implemented as software.
13. A receiver for receiving multimedia data comprising receiving and decrypting means (30), which together:

- receive at least two packets: $C_0[i]$ and $C_1[i]$,
- get the decryption key for packet i : $RK_r[i]$,
- try to decrypt both packets with key $RK_r[i]$,
- receive global information,

- 5 whereby only one packet will decrypt into a proper data packet: $V_{ji}[i]=D(C_j[i], RK_r[i])$, $j \in \{0, 1\}$,
- decode and render $V_{ji}[i]$.

14. A system comprising a source (1), receivers (R_1, R_2, \dots, R_n) and an intervening
 10 distribution network (2) for realizing a method of generating a watermark being unique to a
 receiver (R_1, R_2, \dots, R_n) of a multicast transmission of multimedia data in the form of data
 packets, said method comprising the following steps:
- transmitting from a source (1) at least two different copies ($V_0[i], V_1[i]$) of each data packet
 ($P[1], P[2], \dots, P[k]$) having different watermarks, a first watermark (w_0) and a second
 15 watermark (w_1), respectively,
 - encrypting said copies differently, preferably by means of different encryption keys $SK[1]$,
 $SK[2], \dots, SK[2k]$,
 - providing each receiver (R_1, R_2, \dots, R_n) access to only one of said two copies ($V_0[i], V_1[i]$),
 thereby providing each receiver with an unique resulting data stream (S) comprising data
 20 packets having first and second watermarks, wherein the order in which the first and second
 watermarks (w_0, w_1) are present in the resulting stream (S) provides the unique watermark,
 - providing the data stream (S) with a multi-bit capacity in a single layer for storing additional
 information.

- 25 15. A system according to claim 14, wherein the source is a server and the
 receivers are clients.